VITAMIN D

LIFE EDUCATION
Learning with Harold

Summary

What we call "Vitamin D" is actually a small group of vitamins, some of which are made by animals and others by plants. Vitamin D dissolves in fats and oils, so we can store it in our bodies.

We can make about 80% of the Vitamin D we need ourselves, provided we get enough sunlight on our skin: that's about 10-15 minutes a day. Our best food sources of it are animal foods – oily fish, fish liver oils, beef, liver, some dairy foods, and egg yolks. There may be a bit in mushrooms. It's added to some foods like bread, dairy and plant milks, and tofu.

We need Vitamin D for growing, especially for healthy bones and teeth. It also helps keep our nerves and muscles working properly and with fighting infections. Too little of it (a deficiency) can weaken our bones and teeth.

What is it?

"Vitamin D" is a small group of vitamins or provitamins. Vitamin D3 (cholecalciferol) which is made by animals is the best known with Vitamin D2 (ergocalciferol) made by plants. Vitamin D is fat-soluble (dissolves in fatty substances rather than water) so can be stored in the liver, kidneys and fatty body tissues.

What foods do we get it from?

Not too many foods naturally contain much Vitamin D but oily fishes (like tuna, salmon and sardines) and fish liver oils are good sources. Other sources include beef liver, lean meats, some dairy products and egg yolks. Sometimes mushrooms have some, especially if they've seen some sunlight. Foods "fortified" with Vitamin D have it added: in NZ these mainly include milks, yoghurts and margarines and some breakfast cereals.

Can we get it from anywhere else?

Yes. We can make about 80 per cent of the Vitamin D we need ourselves in our skin- so long as it is exposed to enough sunlight each day. This means getting outdoors, without covering or sunscreen on about 20% of our body, for about 10-15 minutes a day and balancing sufficient exposure with being Sunsmart. Over the NZ winter, especially in the South Island, people who don't get outside much in the middle of the day could be at risk of not making enough Vitamin D and may need some extra from fortified foods or supplements.

Why do we need it?

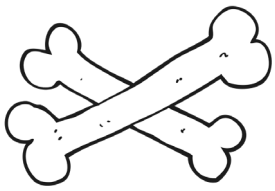
Vitamin D is needed to help us absorb calcium from food and to keep a healthy balance of calcium and phosphate in our bones and teeth so they are strong and healthy. It also helps with cell growth, the normal working of our nerves and muscles, and immune responses. It can help reduce inflammation.

Funky fact

Oily fish are great at storing Vitamin D, but they can't make it. Fish depend directly or indirectly on the plankton at the bottom of the marine food chain for their source. Plankton have been making Vitamin D for over 500 million years.

What happens if we have too much or too little?

Too little Vitamin D (deficiency) can weaken our bones and teeth, but is rare if people eat a balanced diet and get some sunshine. A severe deficiency can lead to soft, deformed or brittle bones. This is called rickets in children and it's called osteomalacia (meaning "soft bones") or osteoporosis in adults. Someone taking too many Vitamin D supplements might feel sick from too much – and this can also cause liver problems.



Is it affected by processing or storage?

Vitamin D isn't really affected by exposure to heat, air or light.

How does the Vit D content of some common foods compare?

Natural source	Total Vit D (ug)	Fortified or supplemental source	Total Vit D (ug)
100 g salmon fillet, baked, fried or smoked	27.0	100 g fortified margarine [1 Tablespoon (13.9 g)	10-19 [1.4 -12.6]
100 g butter [1 Tablespoon (13.9 g)	5.2 [0.7]	1 (250 mL) cup Calci-plus soymilk	5.0
100 g canned sardines in oil	4.8	Cod liver oil - 1 teaspoon (5 ml)	1.0
100 g canned tuna in water	1.7-2.7	1 (200 mL) cup Milo made up with 3 tsp Milo and trim milk	3.9
100 g lean ham	0.9	1 (250 mL) cup Calci Strong flavoured milk drink	1.3
100 g ox kidney, simmered	0.8	1 (250 mL) cup Yellow top Calci + trim milk (0.2% fat) milk	1.3
1 egg, size 6, boiled	0.9	100 g D-fortified fruit yoghurt	0.8
Standard blue top milk (3.3%) fat	0.5	Mixed grain bread, 1 slice (38 g)	0.2
A microgram (µg) is one millionth of a gram (g), or one thousandth of a milligram (mg). Source: The Concise New Zealand Food Tables, 12th edition 2016 (2017).			

The NZ Nutrition Foundation's recommended daily dietary intake (RDI) of Vit D is about 5 micrograms (0.005 mg) for children aged 4 to 18, and 5 to 15 micrograms (0.005 to 0.015 mg) for adults. The amount we need increases with age.

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USEFUL LINKS

Twenty Fun Facts About Vitamins. Retrieved from: https://www.multivitaminguide.org/infographic/20-fun-facts-about-vitamins.html

Vitamin-D-mons. Retrieved from: http://www.vitamindawarenessweek.co.uk/